

Multichannel seismic profiles collected by the
Teledyne Exploration Company in 1977 south of Cape Hatteras, North Carolina

by

Lewis E. Gilbert and William P. Dillon

770310fa

The U.S. Geological Survey (U.S.G.S.) collected approximately 3,700 km of multichannel-seismic reflection profiles (lines TD-1 - TD-6) south of Cape Hatteras on the continental margin (fig. 1). Those profiles were collected between August 15 and October 30, 1977, under U.S.G.S. contract number 14-08-0001-16209 by the Teledyne Exploration Company. The released data include copies of the original records, velocity scans, track charts, and field tapes.

DATA ACQUISITION

The seismic source used to collect these profiles consisted of four 540-in.³ (8850-cm³) airguns that were towed abreast 4 m apart at a depth of 8 m \pm 10 percent. Firing pressure was 2000 psi (13,800 kPa) \pm 10 percent. The multichannel streamer cable was 3.6 km long and contained 48 traces. The 24 traces nearer the ship consisted of 50-m long sections, each containing 30 hydrophones; the 24 farther from the ship were 100-m long sections, also containing 30 hydrophones apiece. The streamer was towed 300 m behind the seismic source a depth of 10 m below the surface. Field filtering in a passband of 8-124 Hz was applied before recording on a Texas Instruments DFS IV system. As a rule, the shot point interval was 50 m, but under certain conditions (e.g. strong currents or very deep water), the shot point interval was 100 m.

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

DATA PROCESSING

The Teledyne Exploration Company processed lines TD-1, TD-3, TD-4, TD-5 and parts of TD-2. The data were demultiplexed, and parameter selections (such as filter tests, scaling tests, etc.) were completed. Basic processing was applied, including binary gain recover, spherical divergence correction, predictive deconvolution, velocity analysis at 3-km intervals, normal-moveout correction, 48-fold common-depth-point stack, poststack time-variant deconvolution, and time-variant filtering and scaling. Those segments of the line with 100-m shot-point intervals were stacked 24-fold. The U.S. Geological Survey processed parts of TD-2 and all of TD-6 at their Denver, Colorado office. The data were demultiplexed and velocity analysis was done immediately. The general processing scheme was constant scaling, filter, normal moveout, 48 fold CDP stacking, A.G.C. (Automatic Gain Control) scaling, deconvolution, filter and trace equalization. This scheme was varied slightly on some sections for visual enhancement. The quality of all records is good.

DATA ACCESS

The original records may be examined at the U.S. Geological Survey office in Woods Hole, MA. Copies of the records, velocity scans, track charts, and navigation tapes can be purchased only from the National Geophysical and Solar-Terrestrial Data Center, NOAA/EDIS/NGSDC, Code D621, 325 Broadway, Boulder, CO 80303 (303-497-6338).

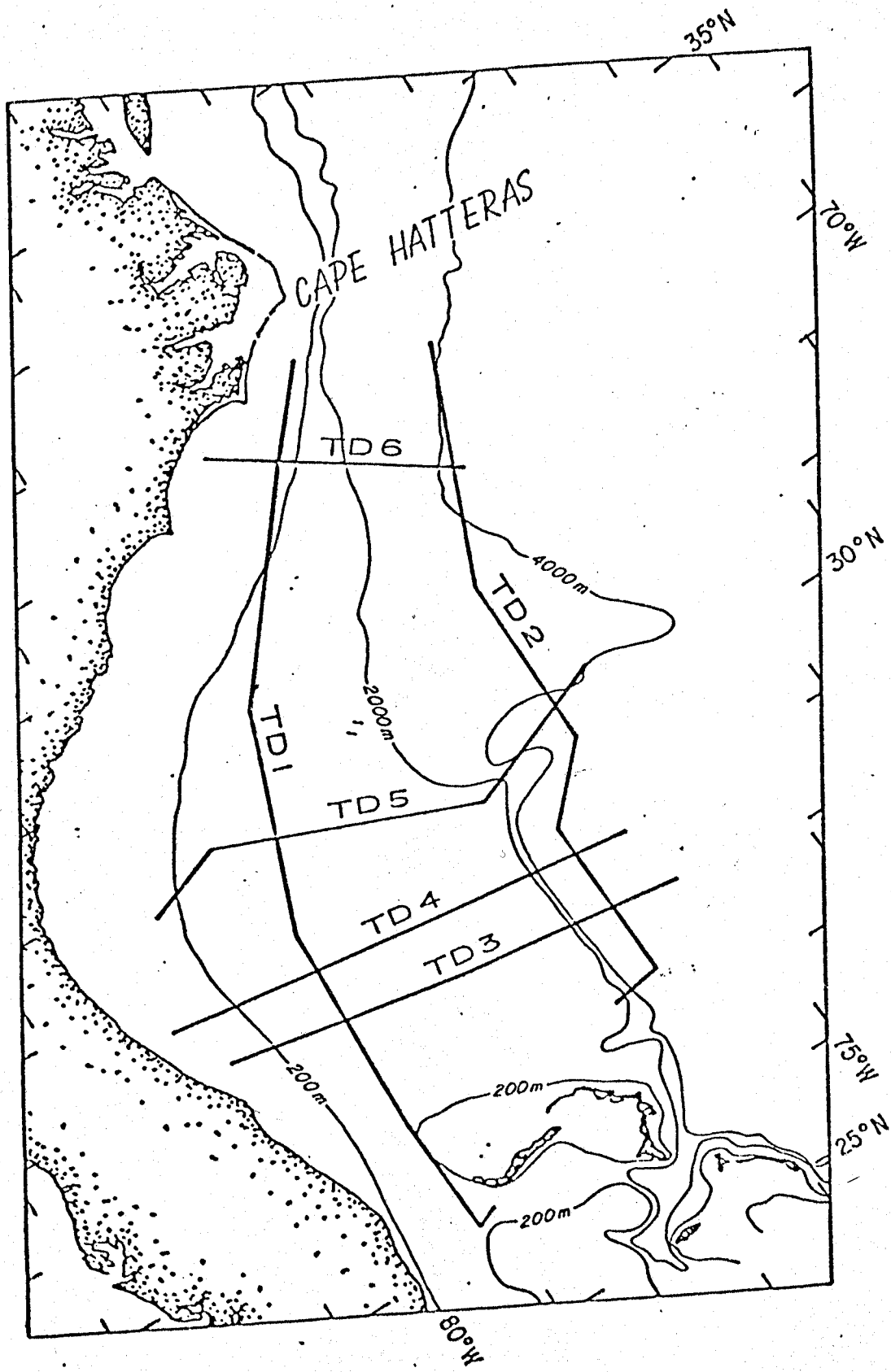


Figure 1: Track map of data being released